AMERICAN JOURNAL OF

# Veterinary Medicine

Published Monthly by

D. M. CAMPBELL, D.V.S.

1920 Wilson Avenue, Chicago, Illinois

Gives Most for the Money, Both to the Reader and the Advertiser

*Entered as Second-Class Matter July 19, 1910, at the Postoffice at Chicago, Illinois, under Act of Congress of March 3, 1879*

Messrs. Bailliere, Tindall and Cox, 8, Henrietta Street, Covent Garden, London, Representatives for Great Britain and Ireland

SUBSCRIPTION PRICE, - - - - - - - - - $1.00 PER YEAR

**VOL. VI.** **JUNE, 1911** **No. 6**

## Leading Articles

# Bacterin Therapy*

**By H. E. VENZKE, M. D. V., St. Paul, Minn.**

It has been truly said that the average textbook is five years behind the times. In veterinary medicine as in other sciences the student is dependent upon his professional journals for information concerning the newer things. We do not expect to find an account of the latest achievement in engineering in any textbook upon the subject, but look rather for such information to the engineering journals. Likewise it is in veterinary journals, and not in veterinary textbooks that we will find an account of the latest surgical operations, or a discussion of the newest agents in therapeutics.

Among the many new and popular agents for the treatment of disease, bacterins must be given first place. Bacterin therapy is now being successfully practised by hundreds of veterinarians and they claim results never before approached in the treatment of suppurating conditions, hence it becomes our duty as students to give it serious attention.

As authority for most of the statements I am going to make in this paper, I will cite THE AMERICAN JOURNAL OF VETERINARY MEDICINE,

*Read at McKillip Veterinary Medical Association, February 3, 1911.

for as I mentioned at the beginning, bacterin therapy is too new to be treated in our textbooks on Materia Medica, Therapeutics or Bacteriology, except Herzog's "Disease-Producing Microorganisms."

A bacterin may be defined as a killed culture of virulent microorganisms. It contains the dead and partially disintegrated bodies of bacteria as an emulsion, in a normal saline solution. A bacterin may be made of one variety of organisms or of many, but in either case the different varieties must be grown separately in pure culture, and mixed in proper proportions after they are killed. If several different kinds of bacteria are grown together in pure culture, some varieties are sure to increase in number faster than others, and thus the composition of bacterin will be unknown.

We should not confuse bacterins with other biologic products. A vaccine differs from a bacterin in containing attenuated live microorganisms, and is useless, unless the germs are present. A serum or antitoxin, on the other hand, contains neither living nor dead organism, but some product of the animal body inimical to the growth of or antagonistic to the products of bacteria.

It should be understood in the beginning that bacterin therapy although theoretically applicable to nearly all diseases of which the causative agent is known, has been successfully used by veterinarians in little other than the suppurative conditions produced by various types of staphylococcus and streptococcus organisms. Opsonic therapy is successful in the treatment of both acute and chronic suppurative infections, but should be administered according to the condition present, and should be thought of only as a valuable adjuvant to existing methods of treatment in these conditions.

I purpose here to discuss its use in chronic infections only of which fistulous withers will be taken as an example.

At the outset I wish to say that in the ordinary treatment of fistulous withers, I do not give as much credit to the veterinarian in curing the condition as I do to nature in overcoming the infection.

Whether the treatment be with bacterins or the old line of treatment, a first requisite is the removal of necrotic tissue and the liberation of entombed pus. After this has been accomplished, I believe every treatment should be directed to increasing the animal's power to overcome invading organisms, because I regard it as impossible to sterilize a fistulous wound, by any method that would not prove destructive to the surrounding tissues. As an example of the difficulty of sterilizing even recently made wounds, I wish to cite the experiment conducted by a German pathologist (Schimmelbusch). He inoculated the tip of a mouse's tail with anthrax bacillus and only ten minutes later cut off the tail at the body; nevertheless the mouse died of anthrax.

I believe that a wound once inoculated can by external means be rendered only relatively sterile, and that the final victory in the contest with the germs must be won by the protective forces *within* the body. Thus in the case of fistulous withers, the rational treatment is to remove, sur-

gically, necrotic bone and ligaments and inspissated pus if it be present, and also form a means of exit for the pus that is being produced. The more freely this pus can run away the better, but if it is impossible or impractical to form an absolutely free drainage very good results may be secured with something less. After this much has been done by the surgeon, the therapeutists should bring up the animal's resistance to the infecting organisms, usually both staphylococcus and streptococcus, to enable the system to overcome them.

This can best be done by the use of a polyvalent bacterin. It has been demonstrated in scientific laboratories time and again, and in practice thousands of times, that injections of a streptococcus bacterin or a staphylococcus bacterin or both, raises the opsonic index for those organisms; or in other words, enables the phagocytes in the animal's blood to do very much more efficient work in destroying the invading germs, than they otherwise could do. This effect is utilized in the treatment of fistula, and a polyvalent bacterin, that is, a preparation of killed staphylococcus and streptococcus organisms, is given the animal hypodermically at intervals of from five to seven days. In from ten to thirty days there is a gradual thickening of the pus, and lessening of the amount discharged, with an ultimate complete recovery.

Apparently the system is able to take care of enlargements and of the so-called pyogenic membrane. The swelling gradually disappears, and but little scar is left where a cure is effected by bacterin treatment.

It is believed that the opsonins are produced in the muscular tissue adjacent to the seat of the injection of the bacterins. Therefore bacterins should never be given intravenously, but always subcutaneously.

A bacterin is, of course, a toxic product, but it is one for which an animal's tolerance raises very rapidly. The initial dose should therefore always be a small one; succeeding injections should be increased as the animal's tolerance for the product is increased. The effect of a bacterin injection on the opsonic index is to cause it to rise after 48 hours, this is sustained from six to eight days. Bacterin injections should therefore be given just frequently enough to maintain this elevation of opsonic index; that is about every five to seven days. A large initial dose of bacterins or a large dose at a subsequent injection will cause a fall in the opsonic index, and an exacerbation of the condition being treated. This is manifested by what is termed a clinical reaction. A reaction to bacterins is similar to a positive reaction to tuberculin or mallein.

The best results are obtained with bacterins when the dose given is just under the amount required to produce a reaction, or when the size and frequency of the dose is such that the maximum positive phase of the clinical reaction is secured, with the minimum negative phase.

In acute infections one or two bacterin injections are usually sufficient. I believe other indications for the use of this product are as a prophylactic of those acute streptococcic infections of young horses, and also as a preventive of suppuration following major operations.

# Buffalo-Gnats (Simulium Pecuarum)*

By DR. C. E. LUCAS, Olney, Illinois.

*History.* The buffalo gnat is found in the South, along the Mississippi river and its tributaries. The record of its destructive effects upon animals dates back as far as 1850. In the worst years, the whole of the Mississippi valley, from the mouth of the Red river, in Louisiana to St. Louis, Missouri, is invaded by swarms of these insects. They are driven about by the wind, and reach points far away from their breeding places. The gnats have been especially injurious since the Mississippi floods of 1881 and 1882. In recent years they have been more destructive to stock than ever before.

In 1884 buffalo gnats appeared in great numbers. In one county in the southwestern part of Tennessee and within a week from their first appearance they caused the death of three hundred head of stock. Besides the actual loss from the death of their stock, planters lose much valuable time in preparing their fields for crops as they are compelled to keep their animals in the stable to protect them. Illinois and Indiana are also more or less invaded in the region bordering the Mississippi, Ohio and Wabash rivers.

*Description.* The buffalo gnat is a small black fly, whose abdomen is broad and thick, thorax short, thick and provided with a hump from which it derives its common name, resembling the hump of a buffalo. Its wings are short and wide, and its three pair of legs are thick and short. The head is bent under, and is nearly as wide as the humped thorax. The free labrum is as sharp as a dagger, and the very prominent proboscis is well adapted for sucking blood.

*Life Cycle.* The female buffalo gnat lays from 5000 to 10,000 eggs in a compact mass upon some object directly over the water's edge. Upon hatching the larvæ fall into the water and fasten themselves to rocks or other objects in the river bed, often losing their hold and floating with the current until another favorable place is found. When the water rises in the spring the larvæ leave their attachment and are carried away with the rising water and are impelled into the current of the large streams by which they may be carried for many miles, spreading out at last in the overflowed regions at just the time when they are ready for their final transformation. It is very generally claimed by the inhabitants of the infected region that the gnats appear with every overflow, and only with an overflow, if such overflow occurs at the proper season and with the proper temperature during the first continuous warm days of March, April and May.

*Character of Swarms.* The number of individuals comprising a swarm cannot be computed, as swarms vary greatly in size. Their life

*Read at Meeting of the Ohio Valley Veterinary Medical Association, January 15

is short, and swarms decrease gradually and soon disappear entirely. New swarms appear and replace the former ones. The duration of an invasion varies from a few days to five or six weeks. If cold weather follows their appearance they remain dormant but are not killed by it, nor by rains, but revive and become active again with the first warm rays of sunshine. Hot weather however, soon kills them, and when filled with blood they drop to the ground, crawl away and soon die. All the domestic animals are attacked by these insects. Horses and mules switch their tails, stamp the ground and show restlessness. Cattle rush wildly about in search of relief. The whole air in the vicinity of the animal is filled with them. On looking towards the suffering brute you can see well defined haze formed by these gnats. Sweeping rapidly with the hand through the air one can collect hundreds of them by a single stroke. The gnats are exceedingly active and endowed with very acute senses, which enables them to find every animal, even if a long distance away. If very numerous they cover the whole animal, without making any selection of position, and immediately go to work.

*Effects and Bites.* Animals bitten by buffalo gnats show all the symptoms of colic. Some are of the opinion that the effects of the bites of the gnats on animals are much the same as that of the rattlesnake on the human system. The animal becomes frantic, but within a very short time it ceases to show symptoms of pain, and submits passively to the infliction, rolls over and dies, sometimes within the space of three or four hours from the first attack of the gnats.

The patients that I have witnessed had colicky pains with slight bloating. The temperature was below normal. Pulse sixty to eighty and the animal became dull and stupid and showed great weakness. In nearly every case the horse ejected a great amount of yellow fluid from the stomach, which is ejected without effort. Small blood clots form over the entire body, but are more numerous inside of the hind legs and around the sheath or udder. These clots remain until the death of the animal which occurs in from three to twenty hours, depending largely upon the number of bites received.

Several autopsies were held, which showed the alimentary canal posterior to the stomach distended with gas. The lungs were congested, liver and spleen normal, blood dark and tarlike. Where the bites were most numerous there were beneath the skin congested and red blotches.

Animals of various kinds become gradually accustomed to the bites. It is a prevailing notion that the bites of gnats appearing first are the most poisonous. It would seem to be more probable however, that the poison introduced in the system of animals, may to some extent, unless sufficient to prove rapidly fatal, cause the production of an antidote which protects the animal against later bites. Consequently the resisting powers of animals are greater later in the season. Experience has also taught owners of stock how to protect them, and in comparison with former gnat seasons fewer animals have been killed of late years.

The loss of blood and the terrible irritation of the skin by so many poisonous bites are reasons sufficient to account for nervous symptoms and blood poisoning.

*Treatment.* Rub the parts affected with five-percent solution of ammonia water. In weak animals give stimulants, as carbonate of ammonia, one dram to one pint of whiskey, three times per day.

*Preventive Treatment.* Smudges have proven the best method yet tried for protecting animals in the fields. Clipping is recommended, as the gnats find difficulty in obtaining a foothold upon smooth skin. Smearing the animal with various kinds of grease, cotton seed oil, fish oil, gnat oil or a combination of stinking oils alone or mixed with tar or kerosene oil has helped to prevent serious attacks. Various fly sprays have also proven beneficial.

---

# Sapremia A Sequel of Parturition in Cows*

By R. C. MOORE, M. D. C., Kansas City, Missouri.

This condition while it has been frequently met with by the writer seems to have been overlooked by our authorities on pathology. It is a septic condition resulting in the case of ruminating animals from eating the placental membranes. It is well known that many animals eat these membranes with impunity, cows not excepted. The cause for the sapremia lies in the fact that in ruminating animals there is no power within the rumen to digest animal tissue and if for any reason the animal, soon after partaking of this kind of food, suffers any disturbance in the digestive tract that stops rumination, and a mass of this tissue is left in the rumen, it must soon undergo putrefaction and finally terminate in death of the animal.

The symptoms are so similar in many respects to those of parturient apoplexy or intoxication that it is often mistaken for that disease. One to four days after parturition the animal will be noticed to have ceased to ruminate, her appetite is either very much diminished or entirely wanting, and she shows vertigo to the extent of inability to stand. The animal frequently gets down and is in a semi-comatose condition. The lacteal secretion is diminished and with the exception of a lack of fullness of the udder without a corresponding supply of milk the symptoms are practically the same as are found in parturient paresis or intoxication.

Distention of the udder as usually applied is followed by a partial recovery. The animal usually gets over its acute toxic symptoms, but continues for days in a debilitated condition, without appetite, with a marked stubborn constipation, elevation of temperature, and an accel-

*Read at the Kansas Veterinary Medical Association, January 10-11, 1911.

erated pulse. Finally in from eight to ten or twelve days diarrhœa sets in and the animal dies exhibiting the symptoms of septicemia. Post-mortem appearances are negative excepting in the rumen which is found to be filled with an extremely bad smelling and almost intolerable gas that nearly drives you from the place when the rumen is opened. On careful examination portions of the decomposed placental membranes mixed with the food products are to be found.

If rumination is not suspended soon after eating this material it is probably regurgitated and remasticated, then passing into the true digestive portion of the canal it is digested and no bad results follow. Hence, the disease can only be looked for in ruminating animals. In one case that came under the writer's observation vomiting occurred, large quantities of the placenta was ejected and the cow recovered, but this is the only case of recovery that has been noted. Treatment so far has been without avail and I do not believe that medicinal agents are likely to be beneficial. It is probable that our best line of treatment would be found in removing the contents of the rumen by operative procedure.

Rumenotomy is a comparatively simple operation and should not be neglected but performed promptly, before there has been enough of the septic products absorbed to reduce the vitality of the animal to any great extent. In performing rumenotomy there is but one important factor to be observed and that is to prevent any of the contents of the rumen entering the peritoneal cavity. This is best accomplished by first incising the abdominal wall thus opening the peritoneal cavity, then suturing the wall of the rumen to the lips of the incision in the abdomen. This is best done by pulling the rumen through the opening, unless there is gas enough to push it through, then suturing around the abdominal incision with an overlap stitch, being careful to make the stitches very close at the lower part of the incision, then the rumen is incised between the two rows of sutures which secure it to the abdominal wall, and the contents are removed.

The rumen should be carefully irrigated with antiseptic solutions, after which the incision in the rumen should be closed by means of the Lambert suture, then the abdominal wound is closed by an X suture through the skin only and parts left to heal. The animal should be supported by stimulants and tonics.

---

**A Gentle Reminder.**—You are going to attend the Toronto meeting? Of course, we'll all be there. If you are not a member of the *American Veterinary Medical Association*, why not join us? Remember to do so you must have your application with a check for $8.00 in the hands of C. J. Marshall, Secretary, 39th street and Woodland avenue, Philadelphia, Pa., not later than July 24th. Come, get in line with us. *We need you.*

G. H. Glover, President.

# Personal Questions on the Tuberculosis Problem

By BURTON ROGERS, D. V. M., Manhattan, Kansas

Do you realize that among the 35,427,921 hogs killed at the packing houses in 1909 the government inspectors found exactly 836,848 tuberculous hogs?

Do you realize that this is 130,802 more tuberculous hogs than were found in the year 1908, and 623,824 more than were discovered in 1905?

Do you realize that during the past ten years 2,648,520 tuberculous hogs and 212,340 tuberculous cattle have been found, decreasing our meat supply and increasing the cost of living?

Do you realize that the bulk of the hogs of this country associate either constantly or intermittently with the cattle on the same farm?

Do you realize that the bulk of these 836,848 hogs became tuberculous because they associated with herds of cattle in which there were one or more dangerously tuberculous cattle?

Do you realize that practically all of the raw milk, butter and other dairy produce coming from these same farms, from these same herds, and from these same dangerous cows was and is being eaten in this country?

Do you realize that 81,000 persons died of tuberculosis in 1908? If only one per cent of these deaths, or 810, were due to animal tuberculosis, and if you could prevent it, would it be worth your while?

Do you realize that the *decrease* in human tuberculosis is due to early recognition of the disease, and that the cause might be actually increasing, and the cures increasing because taken in time and because of the sanitariums?

Do you realize that the germs eaten in babyhood may multiply slowly for twenty or more years and not be noticed?

Do you realize that most hogs are killed when they are less than one year of age, and that these hogs acquire the disease within the year prior to slaughter?

Do you realize that the hogs out on the farms right at this moment that are associating with tuberculous cattle are becoming tuberculous, and that those associating with healthy cattle will remain well and free of tuberculosis?

Do you realize that within one year from today practically all of these hogs will reach packing houses having inspection and be mixed with thousands of others and be inspected?

Do you realize how unfortunate it is that when they are found tuberculous that no one knows the farm from which they came?

Do you realize that if every farmer could simply be induced or compelled to tag every hog he markets with his name and address that we

would inside of one year and certainly inside of two years know where these farms are located?

Do you realize that this would be an automatic costless test for tuberculosis of the bulk of the farms of this country?

Do you realize that if we knew the locations of these farms we could give the babies of this country the "square deal" that we adults owe them by controlling conditions so that they would not be compelled to consume the milk from tuberculous cows?

Do you realize or know that the *International Animal Tuberculosis Commission* in their resolution No. 5 endorsed the plan I have been advocating for ten years in the following quoted words? "One of the best possible methods."

Do you realize that it is necessary to determine and demonstrate the value and truth of this on a small scale, say a county, before it will ever be adopted throughout the country?

---

# Rheumatism of the Horse*

By D. A. DAVISON, D. V. S., Princeton, Indiana

Rheumatism is a constitutional inflammatory affection that for a long time was thought to be of lactic acid origin, however, it is now believed to be a toxemia, the result of bacterial development, which attacks both articulations and muscular tissue.

Rheumatism has an acute onset and does not present peculiar or constant lesions. Although the joints are the chief seat of invasion, still in many instances, and even in aggravated cases the pathological changes are slight or altogether absent.

The synovial membranes of the affected joints are usually injected, discolored, swollen, and their articular surfaces coated with fibrin. The soft parts around the joints are often infiltrated, which causes them to be extremely sensitive to the touch. These swellings are often soft but they may be tense and elastic, some writers claim that they are sometimes œdematous and pit on pressure, but I do not remember of ever seeing a case in this condition.

It is claimed where there is a mixed infection there is always suppuration. The effusion accompanying uncomplicated rheumatism is of a serous consistency and contains a small amount of fibrin and leucocytes. A similar exudate appears in the peri-articular tissue, and in the tendon and synovial sheaths. The synovial fluid is usually in excess and deeply colored with red. There is a tendency to the formation of false membranes, which when formed, become organized and produce lameness and stiffness. Softening and rupture of the tendons has been observed by

*Read at Annual Meeting of the Ohio Veterinary Medical Association, January, 1911.

several well-known authorities. The affected joints sometimes become denuded of their articular cartilage.

Whenever we are called upon to examine a horse suffering from lameness of a shifting variety, it behooves us to make a correct diagnosis in the living animal. To do this we should consider the following differential symptoms of osteoporosis, millet disease and rheumatism.

*Osteoporosis*: This causes a shifting lameness of slow onset with no history of millet feeding; recoveries extremely rare. There is no decided kidney or ordinary changes; the bowel action is normal or nearly so; there is a very slight elevation and variation of temperature. The course and severity are not influenced by atmospheric conditions. It almost always assumes the chronic type in spite of care and treatment, unless a change is made to a more favorable climate.

In lameness due to osteoporosis no benefit results from the administration of salicylates. There is lack of spirit; sluggishness and the animal is easy to tire, even with slow or moderate work.

In the beginning of osteoporosis there is presented very slight articular or bone lameness, which becomes gradually aggravated, with slight elevation of temperature; there is no decided muscular tenderness but an awkward, clumsy gait, with a tendency to stumble and to lie down frequently and no desire to get up; there is no tendency toward the development of complications unless the maxillæ have become involved to such an extent that mastication is interfered with. General emaciation develops gradually. We often observe decided lameness with no visible evidence of joint involvement. The disease never attacks tendons, the bones become enlarged, thickened and softened, the teeth become loosened and mastication impaired; thickening of the rami of the inferior maxilla is usually present; the tendons have a tendency to tear away from their attachments, carrying the periosteum and portions of bone with them.

*Millet Disease*: This is characterized by a shifting lameness with an acute or sudden onset and a history of millet feeding. The symptoms rapidly disappear upon discontinuing the millet feeding. A large percentage of the cases make quick and complete recoveries.

At first there is overstimulation of the kidneys, characterized by the excessive and frequent flow of urine. This is followed by partial or complete suppression of urine; the urine in the subacute and chronic cases is thick, light-colored and scanty.

In cases of suppression of urine acute nephritis may develop. Then there are intermittent, colicky pains and other symptoms encountered in cases of suppression of urine, such as constipation, slight elevation of temperature of the remittent type; lack of spirit and energy with restlessness, loss of appetite; indigestion; staring coat; pained expression; general debility; stilty, uncertain, painful gait with tucking up of flanks. The animal assumes a cramped position with back arched and head down; the tongue is coated and the mouth has a peculiar sour smell. There is a localized or general articular tenderness characterized by heat, swelling

and pain. As a rule the joints involved are hock, stifle, knee and elbow. There is a diminished amount of synovial fluid in the affected joint, no softening of the tendons, and no tendency to rupture, no thickening or enlargement of the bones, and no loosening of the teeth. There is a tendency of the muscular and ligament attachments to tear away from their insertions.

---

# Glanders and Its Symptoms*

By DR. JAS. CAMPBELL, Henderson, Kentucky.

The fact that glanders is a disease that is readily transmissible to man, and that it occurs in a more or less latent form in some animals of the equine species in almost every locality, should be sufficient to warn every owner of horses to be on the lookout for the first symptoms of this dreaded disease.

Glanders is a contagious, constitutional disease of the horse and mule and is readily communicable to man, dog, cat, pig and other small animals. The bovine species is the only one exempt from glanders. The disease is caused by the Bacillus Mallei, which is found in the discharge from the nostrils, in the pus from the ulcers and in acute attacks in the blood also.

The disease does not result from strangles, nasal gleet or other diseases, though it may be found in combination with them. Glanders and farcy are one and the same disease; the latter being the external or cutaneous form. In either form it attacks the lymphatic system and is confined usually to the lungs, upper air passages, and Schneiderian membrane, though it may attack the bones or any of the internal organs.

Many animals have glanders in a latent form. The disease may exist without any outward appearances and the animal be apparently sound; but from the effects of hard work, exposure, debility, or from an attack of another disease, an acute attack of glanders will be brought on and the animal quickly succumb. The external form begins with the formation of little nodules under the skin. They vary in size from size of a pea to that of a walnut, and are called farcy buds. They are hot and sensitive to the touch and soon break down and form a ragged ulcer, which discharges a peculiar, oily, sticky looking fluid, which is characteristic of the disease. Along with this may be lameness, swelling of one leg (usually a hind one), a chronic cough and general unfitness.

In acute glanders, the respiratory tract is affected; there is a discharge from one or both nostrils; it may be slight or profuse, it is usually not odorous, except in the last stages when it has a peculiar easily recognized odor and is sticky and adheres to the nostril. On the septum nasi

*Read at Meeting of the Ohio Valley Veterinary Medical Association, January, 1911.

may be seen small ulcers in various stages of development discharging oily looking contents and usually stellate-shaped cicatrices that mark the place where ragged ulcers have healed. Often, however, the ulcers may be situated so high up in the nasal passage, that they cannot readily be seen by the ordinary method of examination.

Acute glanders may be mistaken for strangles or nasal catarrh, but there are no nodes in either of these diseases and the discharge is more profuse in nasal catarrh. When there is doubt as to the diagnosis, Mallein or the inoculation test should be employed. The Mallein test is made by injecting Mallein, a sterilized product from a culture of B. Mallei, subcutaneously. The inoculation test consists in inoculating a rabbit or a guinea pig with some of the discharge from the nose.

The treatment for glanders is mainly prophylactic. Slight cases may apparently recover with proper care and treatment, but there is always danger of these animals infecting others, or of the disease breaking out again in an acute form. All suspected animals should be separated from other animals at once. Pronounced cases should be destroyed, and the other stock quarantined for a period of from one to three months. Several states have passed excellent laws for the control of glanders, and allow indemnity for animals destroyed, with the result that the disease in such states has been almost completely eradicated, but in Kentucky the danger to human life from the prevalence of glanders among horses is little considered.

---

# Special Veterinary Training Courses

**By ARCHIBALD R. WARD, Manila, Philippine Islands**
**Dean, College of Veterinary Science and Chief Veterinarian, Bureau of Agriculture**

A number of considerations have shown the necessity for instituting special training courses for employees of the Bureau of Agriculture by the cooperation of the College of Veterinary Science and the Bureau of Agriculture.

The Bureau is laboring under the handicap of necessarily drawing veterinarians from the United States where rinderpest, surra, and foot-and-mouth diseases do not exist. A fourth one, contagious pleuro-pneumonia, might be mentioned, for although it is not known to exist in the Philippines at present, with the exception of a few cases among certain cattle in quarantine, the possibility of its invasion has put the veterinary corps in such a state of alarm that a careful lookout will be kept for it for some years to come.

Real education regarding a disease can not be had without actual contact with it, no matter how excellent the instructors and text-books may be. Veterinary colleges in the United States are engaged in the

work of preparing men to combat cattle diseases common to their own country, and in consequence, can not be expected to give instruction in specialized work that would best prepare a man for Philippine problems.

The bewildering diversity of diseases which the man new to the Philippines will immediately encounter in the field, warrants the maintenance of a brief review course dealing with their characteristics. In cattle there are rinderpest, foot-and-mouth disease, hemorrhagic septicemia, surra, anthrax, verminous bronchitis, and tuberculosis, with the possibility of contagious pleuro-pneumonia and the occurrence of Texas fever occasionally as a complication with some of them. In horses there are surra, glanders, and epizootic lymphangitis. In both cattle and horses there are, undoubtedly, other diseases that have been confused with these. Careful pathological work has recently brought two of the above-mentioned cattle diseases to light.

The average veterinarian who enters the employ of the Bureau of Agriculture is generally a young man recently graduated from a veterinary college in the United States, who comes to the Islands for the sake of the novel and extensive professional experience to be had here, and partly on account of the attractions of the travel involved. After two or three years he yields to the desire to go home and settle down for his life work, feeling that too long a stay here would handicap him in his professional career in the homeland. The result is that the personnel of the veterinary corps is undergoing constant change, and the problem of new men is more important here than in similar work in other countries. The Bureau gains by having young active men well qualified to adapt themselves to the new environment without loss of time, and on the other hand, loses because the "breaking in" period occupies such a large proportion of the total time spent in the Islands.

It is with the idea of reducing to a minimum this training period, that special veterinary instruction has been instituted in the Islands. A course of reading on subjects connected with tropical veterinary sanitary science, interspersed with discussions and lectures, is one of the most important features of the instruction. The common cattle diseases pertaining to the Islands are covered thoroughly and the features of the campaign being conducted against them by the Bureau are explained in detail. The methods employed in India, South Africa, Indo-China, and elsewhere are analyzed, and the conditions in those countries as affecting the control of rinderpest are compared with those in the Philippine Islands.

Visits are made to the serum laboratory at Alabang to observe the details of the preparation of serum. Actual observation of the details of the routine work and experiments in progress there afford exceptional opportunities for the new men to become familiar with the value and the limitations of anti-rinderpest serum. Cases of rinderpest are to be seen there daily, affording unlimited opportunities to study symptoms. Likewise, the work there gives an opportunity for the pathologist of the Bureau to demonstrate the changes in the organs produced by rinderpest.

Deaths from surra are frequent enough in Manila to afford opportunities for the pathologist to demonstrate the characteristic features of the internal organs of an animal that has died from this disease. Postmortem examinations of other diseases are made as opportunity offers. The abattoir furnishes material for instruction.

The use of the microscope in detecting such diseases as surra and anthrax in material from the live or dead animal in the field is demonstrated, as well as the use of bacterial cultures in confirming a diagnosis.

The inspection of freshly slaughtered and frozen meat, of imported live stock, the disinfection of ships and railway cars, the management of quarantine stations, the issuing of transportation permits, are all details of work which the new comer is liable to encounter at any time. He is given opportunities to become thoroughly familiar with these matters so that he could assume any of these duties on short notice with the minimum loss of efficiency due to the change. Not the least among the things a newcomer should know are the precautions he should take for the preservation of his own health. The necessary care in regard to drinking water, food, mosquitoes, and the like, is brought to his attention in a series of lectures.

At present the work is in a developmental stage. As the facilities are improved, it is intended to expand the course into a closer approximation to the post-graduate training courses at the army and navy medical schools and the laboratory training course of the United States Public Health and Marine-Hospital Service. The instruction outlined above is in progress at present, and other work is under consideration.

The Bureau employs a large number of Filipino assistants. These men when first employed are entirely ignorant of the first principles of the work in which they are to engage. They scour the country in search of suspicious cases of rinderpest and surra, which they report to the veterinarians for verification. Their duties are thus very important, and their training constitutes a heavy draft upon the time of the veterinarian. It is believed that the efficiency of the corps would be improved by affording opportunities for these men to receive several months' training at the College of Veterinary Science. The Pandacan stock yards will require many men, and it is hoped to perfect arrangements by which the most promising of the Filipinos employed by the Bureau might support themselves in Manila while receiving instruction.

While not directly affecting the field work of the Bureau, the introduction and the stimulation of the practice of shoeing draft cattle, carabaos, and horses is a line of work in which the college could render practical benefit to the live-stock interests. At any time in Manila one may observe carabaos limping from sore hoofs, due to excessive wear upon the pavements, or to the primitive, inefficient substitutes for iron shoes. Should it become clear that candidates for instruction in shoeing animals would present themselves, courses of training open to employees of the Bureau or others, would be made available.—*Philippine Agricultural Review.*

# Veterinary Clinic

**Translated by DR. E. M. EPSTEIN, Chicago, Illinois**

CASE 1.—Cream-colored cow of strong build, eighteen years old. This animal, which is in very good condition and of very lively habits, laid down and could not rise. A veterinarian was called and found the case to be that of paraplegia. [Paraplegia subsequent to calving is said to be much commoner in France than it is in this country. It should not be confused with milk-fever.—ED.] Appetite diminished, rumination sufficiently active, pulse and temperature normal. The animal, when she was excited purposely, made vain attempts to rise, but the hind extremities were unable to leave the ground.

*Treatment.*—Bleeding from the jugular to the extent of three quarts. Frictions with oil of turpentine every fifteen minutes over the loins. Internally two hundred and twenty granules (grain 1-67 each) of strychnine sulphate, ten granules to be given every fifteen minutes.

On the day following the same treatment was continued and two hundred and twenty granules (grain 1-67 each) of strychnine sulphate were absorbed, and also four ounces of sodium sulphate in the drink.

On the day following the patient had entirely recovered and the owner remarked that those little pills wrought wonders; his animal is as well as ever she was before.

CASE 2.—Clear cream-colored cow, nine years old. On the 13th of June the animal dropped a calf without assistance, and on the 15th she was found dragging herself about the stable. The veterinarian was called next evening and found the case to be paraplegia, the hind quarters could not move, the appetite was fair, and there was no fever.

*Treatment.*—Frictions with oil of turpentine; four ounces of sodium sulphate in the drink, and two hundred and ten granules (grain 1-67 each) of strychnine sulphate, ten to be given every quarter of an hour.

Two days later conditions were unchanged, and two hundred more granules (grain 1-67 each) of strychnine sulphate were again given during the day.

The next day the animal raised herself, and the loins were far more sensitive. The veterinarian ordered one hundred and fifty granules of the strychnine sulphate to be given as before. He pricked the animal with a pin and to the great astonishment of the owner and his neighbors the animal rose and began to eat. Recovery was complete in another day.

—*Repetoir Universal de Medicine Dosimetrique*, Vol. X, p. 573-576.

---

THE man who is not studying to improve his profession is failing to do his part in making the world better. He is failing to realize his responsibilities.

OWING to the demands of their large and rapidly growing business Ernst Bischoff & Co., have been compelled to seek larger quarters, and for this purpose have removed to 84 and 86 C West Broadway. Please note the change of address in communicating with this firm.

## Good Things to Come

1. My Experience With Bacterins. F. M. Starr, D.V.M., Odessa, Mo.
2. Parturient Apoplexy. R. Ebbitt, M. R., C. V. S., Grand Island, Nebr.
3. Hemorrhagic Septicemia. Lyman D. Brown, M. D. C., Hamilton, Mo.
4. Some Anomalies of Dentition and Other Cases. L. L. Hewitt, D. V. S., Moran, Kans.
5. The Physiology of Parturition. R. F. Bourne, B. Sc., D. V. S., Kansas City, Mo.
6. A Practitioners View of Swamp Fever. O. M. Norton, D. V. S., Greenville, Miss.
7. The Diagnosis of Glanders by the Precipitation Reaction of Konew. W. L. Boyd, D. V. S., Kansas City, Mo.
8. The Stomach Tube in Urgent Cases. H. B. Treman, D. V. M., Rockwell City, Iowa.
9. The Control of Bovine Tuberculosis. J. H. McLeod, D.V.M., Charles City, Ia.

FOR SALE.—A five-room cottage, a 32 x 40 cement block hospital, 100 x 150 ft. lot, and a $3,000 per year veterinary practice in a desirable location in South Dakota. Address No. 76, care of VETERINARY MEDICINE.

FOR SALE.—Good veterinary practice in one of the best agricultural districts in Nebraska. Barn, operating table, stocks, city water, electric lights, etc. Good reason for selling. Address box 41, Osceola, Nebr.

FOR SALE.—Hospital 48 x 50 feet; two stories, living rooms above, on paved street, sewer connections, city water, electric lights, interurban car-line in front of door. Practice $3,000 a year (actual receipts). City of 18,000, 14 miles of pavement, gas well being opened in immediate vicinity; only hospital in the city. Price $4,000 (actual property value), easy terms. Dr. E. M. Bates, 814 W. 8th Street, Coffeyville, Kans.

WANTED—A good Veterinary Surgeon and Dentist. Must be a graduate who has had *real* experience. No bums, dope fiends, correspondence-course vets., or would-be's considered. If you want to locate in the best community in the United States, where people pay their bills and life is worth living, communicate with me at once. C. S. Kendall, Hamilton, Montana.

FOR SALE—**Surgical Diseases of the Dog,** by Cecil French, D. V. S., $3.00 each, postage prepaid. This is an excellent work on the subject; contains ninety-one illustrations and more than 400 pages. It formerly sold for $5.00. Address VETERINARY MEDICINE, 1926 Wilson Ave., Chicago, Ill.

A CARD LEDGER is the modern ledger; no closed accounts are ever in the way; no hunting for open accounts; no indexing of accounts. Every balance is shown at a glance. A complete record with the fewest written words. See the description in the advertising section.

FOR SALE—At a bargain, good practice in live town in northern Oklahoma. No other graduate veterinarian in county. For particulars address No. 74, care of VETERINARY MEDICINE, 1920 Wilson Ave., Chicago, Ill.

AMERICAN JOURNAL OF
VETERINARY MEDICINE
SUCCESSOR TO
MISSOURI VALLEY VETERINARY BULLETIN

Per Annum in Advance..... $1.00
Single Copy..... .10

**ADVERTISING RATES**

| | |
|---|---|
| 1 Page, per year | $150.00 |
| 1/2 Page, per year | 90.00 |
| 1/4 Page, per year | 50.00 |
| 1/8 Page, per year | 30.00 |

**WANT** and **FOR SALE** ads $1.00 per issue for 25 words or less, cash in advance.
All bills for advertising will be collected by sight draft after due notice.
Original articles and case reports solicited for publication.
Subscriptions from the United Kingdom should be sent to our London Office in care of Messrs. Bailliere, Tindal & Cox, 8, Henrietta Street, Covent Garden, London, England.
The Editor is responsible for his own opinions only. He tells what he believes to be the truth and will be grateful to readers if they will point out his errors to him.
Address all communications to

D. M. CAMPBELL, D. V. S.
1920 WILSON AVENUE, CHICAGO, U. S. A.

# A Veterinary Weekly

During the past two years suggestions that we publish VETERINARY MEDICINE weekly have frequently come to us and such a course will probably ultimately be adopted, but after mature deliberation we have decided not to take this step at this time nor in the near future.

There is, however, a field for a veterinary weekly in this country and to meet its needs it is with pleasure that we recommend *The Veterinary News* of London. Our readers are already familiar with the intensely practical and fully up-to-date character of the contents of *Veterinary News* from the many short articles which we have reprinted from it.

It is of interest and importance to us to know how the veterinarians of older countries meet their problems, social, political and professional, and no other publication will give us this information so well as *Veterinary News*. But aside from the "news" it contains it is worth more than its cost to every practising veterinarian for its practical information relative to veterinary science. Excepting VETERINARY MEDICINE we know of no other publication that possesses as great value for American veterinarians as does *Veterinary News*.

For the convenience of readers we have arranged to take care of subscriptions for this publication from United States. See the announcement in the advertising section.

## Veterinary Special to Toronto

The preliminary announcement was made last month of the plans for the special train to take veterinarians assembling in Chicago to the A. V. M. A. meeting in Toronto next August. The plan has been heartily approved by every one interested and already the "special" is assured.

It is planned for most of the veterinarians from west of Chicago to arrive here in the morning of August twenty-first and to spend the day in Chicago.

The Chicago Veterinary Society will arrange to meet all incoming delegations of veterinarians that day and provide entertainment for them. As to just what this entertainment will consist of we are not quite ready to announce. A shopping and sight-seeing tour for the ladies through some of Chicago's magnificent department stores will, with a luncheon at one of the stores, occupy most of the time at the disposal of the ladies.

The gentlemen will be entertained in a manner yet to be announced; but those who attended the A. V. M. A. at Chicago two years ago and had a sample of the kind of entertainment the Chicago Veterinary Society can give will have no hesitancy in predicting that it will be worth while.

Everything points to a large attendance and a successful meeting at Toronto this year. Aside from the scientific program, action on several legislative or political matters of tremendous importance to the veterinary profession will be taken at this meeting. It is none too early to lay your plans to attend this meeting.

## Experiment Station Publications

**Blackleg, Its Nature, Cause and Prevention.**—Bureau of Animal Industry Circular. This is the third revision of this important publication by the United States Department of Agriculture. From the *Historical Review* we learn that blackleg, quarter-ill, or symptomatic anthrax has been definitely recognized as a distinct disease caused by a specific microorganisms, only during the last quarter of the past century, but that there is little doubt that this disease has existed for many centuries and that a large number of the epizootics among cattle which are referred to by early historians and clinical observers as anthrax were really blackleg and not anthrax. The anthrax bacillus, the first bacteria to be observed, was discovered by Davaine in 1850 in the blood of sheep that had

died of anthrax, but it was not until 1877 that Pasteur succeeded in demonstrating that this bacillus was the essential cause of anthrax and it was not until 1879 that it was proved by Arloing that symptomatic anthrax or blackleg is caused by an entirely different organism and consequently is a distinct disease. The blackleg bacillus is one of the most widely distributed of pathogenic organisms, occurring with equal frequency on the mountain pastures and low lands and all elevations between; as far north as the cattle range and also in the tropics. In France it is regarded as the most destructive disease among cattle and in several states of this country, particularly in Texas, New Mexico, Oklahoma, Kansas, Nebraska, Colorado and North and South Dakota, the loss from blackleg in certain portions exceeds loss of cattle from all other causes. As is well known, animals are most susceptible to this disease between the age of six and eighteen months. This is explained on the theory that the inherited immunity which calves have at birth is gradually lost during the first six months of extra-uterine existence, and that the active immunity which is acquired by cattle is not sufficient to protect them from this disease until about the age of eighteen months.

The death of calves from blackleg, less than four or five months old, is rare, and equally rare are cases of blackleg in animals more than two years old, though such cases do occur. Pure-bred and well-cared-for animals are more susceptible than grades which rough it on the range, and fat cattle are more susceptible than the lean ones. Perhaps animals that are being rapidly fattened are most susceptible of all.

It is a common knowledge among stockmen that calves suffer most from blackleg about the time there is a change of feed, that is at the time of going on to grass in spring and being put on dry feed in the fall. Frequently this occurs in calves that are shipped out from the stockyards and put on grass, such animals succumbing to blackleg in a short time after being turned on pasture. So generally has this been noted by the stockmen that the belief is well grounded among them that blackleg is due to a change of feed. Others have noted that blackleg is most prevalent in animals that have but little exercise, and believe that exercise is a preventive of it.

Both of these theories are based on much of fact, and are explained in this Bulletin as follows:

"This theory, for several reasons, appears to be very plausible. In the spring, when the young stock suddenly find themselves in the midst of plenty, they need to feed over but a very limited area before they are filled up, when they lie down to ruminate. Under these circumstances, namely, plenty of food and little exercise, there is a tendency to an accumulation in the system of lactic acid, which has the property of greatly increasing the virulence of the blackleg bacillus. So great is the effect of lactic acid in this respect that a few drops added to a solution of blackleg vaccine will in the course of five to six hours restore to the highly attenuated spores their original virulence, and vaccine treated in this way will, if injected into a susceptible animal, produce a fatal attack of blackleg. As the lactic acid

in the system is found principally in the muscles, and is excreted by them through their activity, there is every reason to believe that lack of exercise while the grass is fresh and abundant is a predisposing factor in the appearance of blackleg."

The symptoms of blackleg are too well known to veterinarians to be repeated here. They are fully given, as are also the post-mortem appearances, in this Bulletin which is primarily for the information of the stock raisers.

Regarding the manner of infection this Bulletin says:

"As already mentioned, the blackleg bacillus gains entrance into the body through abrasions of the skin, and perhaps in rare cases through the mucous membrane. In order to meet the requirements for the development of the spores—that is, an absolute absence of oxygen—it is necessary that the abrasion be minute in size and sufficiently deep to penetrate through the skin into the subcutaneous tissue; consequently incised or open wounds are not favorable to the development of blackleg, even if the infection is present in abundance. Slight wounds of the skin, such as those received from barbed-wire fences or from stubbles, thorns, spines, crossbars, and briers in the pasture, seem to be the most likely method of infection and correspond most closely to the only manner in which the disease may be produced artificially—that is, through hypodermic injection of the virus. It is doubtful whether the infection ever takes place through ingestion. In any case it has proved exceedingly difficult to produce the disease, even by feeding enormous doses of highly virulent material.

"The fact that in 99 per cent of all cases the tumors develop on the surface of the body seems also to indicate that the infection takes place through the skin, and the few cases recorded where the deeper-seated muscles have been affected—for instance, the muscles of the diaphragm, or those popularly known as the tenderloin—without the presence of tumors on the surface may be due to the germs gaining direct entrance into the lymph stream, which carries them directly to muscle groups located in the interior of the body. Several observers have found the blackleg organism in the mud of swampy pastures. By placing a little of this mud under the skin the disease has been produced."

It is apparent from the reports from veterinarians in Europe that cases of blackleg seldom recover there, but in this country recovery from this disease is not infrequent. The treatment resorted to is usually a deep incision of the tumor, profuse bleeding by opening of the jugular or other veins and violent exercise. It is very doubtful if any of this treatment does any good, and the bleeding may, and probably does, do harm. If the animal survives the first five to seven days it seems that the disease is overcome, and if the depleted system has strength enough left the animal recovers, in which case the long convalescence is constantly retarded by extensive local tissue destruction which must heal by granulation and is a constant drain upon the system from suppuration. In most cases the animal is left a cripple for life

With stock owners, the incision of the tumor and the application of concentrated lye, turpentine, petroleum and other irritating substances, is believed to be of great efficacy in bringing about the recovery of the animal, but when it is remembered that these same stockmen who report occasional recovery from this treatment have perhaps tried it on dozens and dozens of animals that succumb to the one that recovers, one cannot place much dependency on the efficacy of this treatment. Because of the infection of the premises which must occur from the opening of the tumor, it is advocated in this bulletin never to use a knife on an animal suffering from blackleg unless it is kept confined in a place which afterwards can be thoroughly disinfected. It should be borne in mind that the spores of the blackleg bacillus retain their virulence for years after they have left the body of the infected animal, although they do not multiply outside of the animal economy, they are merely awaiting an opportunity to regain an entrance thereto and to continue their destructive work.

The treatment being ineffective, every effort should be directed at the prevention of this disease. The circular continues:

"It is therefore of the utmost importance that cattle owners in the infected districts be made to realize that an animal affected with blackleg may be the cause of large subsequent losses from the same disease, perhaps not immediately, but within a period of years to follow; and it can not be too urgently recommended that they make every effort to reduce the danger by taking measures to destroy this source of renewed infection."

The carcass dead blackleg should be burned without moving if possible and should never be skinned. Burying is ineffectual for the reason that the microorganisms live many years in the ground and as Pasteur has shown may be carried to the surface through the agency of earthworms. It is by all means best as soon as a diagnosis of positive blackleg is positively made to kill and burn the animal. A full discussion of methods for removing the infection from pastures is given in this bulletin and also a history of prophylactic method and the attenuation of the virus and preparation of the vaccine, which the Bureau has made and distributed to the extent of more than 15,000,000 doses, and it is safe to assume from the reports that at least 12,000,000 animals have been actually vaccinated, whereby the percentage of loss from blackleg has been reduced to less than one-half of one percent. Most of this blackleg vaccine has been used in badly infected regions where the death from blackleg amounted to more than ten percent of the annual calf crop. It is therefore plain that this blackleg vaccine distributed by the bureau has saved the loss of more than a million animals. The vaccine will not be distributed by the bureau to any one person for distribution among others, except in the cases of sanitary officers. Veterinarians who wish to obtain vaccine for their clients may forward the names and addresses for those who wish the cattle vaccinated and an application blank will be forwarded to them. This must be filled out and certified by the cattle owner himself, and the vaccine will be sent to him direct.

From first to last this bulletin is an exceedingly interesting and important one for veterinarians, and a very authoritative treatise on the subject. Every veterinarian should, and we hope will, secure it. Address, Chief of the Bureau of Animal Industry, Washington, D. C., and ask for Circular No. 31.

---

**Bovine Tuberculosis.**—Bureau of Animal Industry, Circular 175.—This circular is a reprint of the Report of the International Commission of the American Veterinary Association, for the control of bovine tuberculosis, and has previously been mentioned at some length in these pages. This commission consists of:

J. G. RUTHERFORD, V. S., H. A. R. C. V. S., veterinary director general and live stock commissioner of the Dominion of Canada, Ottawa, Canada; chairman.

M. H. REYNOLDS, D. V. M., professor of veterinary science, College of Agriculture and Experiment Station, University of Minnesota, St. Anthony Park, St. Paul, Minn.; secretary.

WILLIAM C. EDWARDS, Senator, Canadian Parliament, Ottawa, Canada.

J. J. FERGUSON, head of the animal foods branch, Swift & Co., Chicago, Ill.

J. W. FLAVELLE, LL. D., governor, Univeristy of Toronto; president William Davies Packing Co.; Toronto, Canada.

W. D. HOARD, ex-governor of Wisconsin; editor of *Hoard's Dairyman;* Fort Atkinson, Wis.

CHARLES HODGETTS, M. D., C. M., L. R. C. P., chief medical adviser, Committee on Conservation for Canada, Ottawa, Canada.

J. N. HURTY, M. D., secretary State Board of Health of Indiana, Indianapolis, Ind.

JOHN R. MOHLER, A. M., V. M. D., chief of the Pathological Division, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

VERANUS A. MOORE, M. D., director of the New York State Veterinary College, Cornell University, Ithaca, N. Y.

MAZYCK P. RAVENEL, M. D., professor of bacteriology, University of Wisconsin, Madison, Wis.

E. C. SCHROEDER, M. D. V., superintendent of Experiment Station, Bureau of Animal Industry, United States Department of Agriculture, Bethesda, Md.

T. W. TOMLINSON, secretary American National Live Stock Association, Denver, Col.

FREDERICK TORRANCE, B. A., D. V. S., director of the faculty of comparative medicine, University of Manitoba, Winnipeg, Manitoba.

We presume this report is already in the hands of all of our readers, at least it should be. If any have not yet secured it we advise you to do so

It is an important document, one with which you should be familiar.

Of the latest meeting of this Commission, Secretary Reynolds says:

"A meeting of this Commission was held in Buffalo on February 27th. It was decided that the first task would be the preparation of material for a small pamphlet on the subject of bovine tuberculosis. This pamphlet is to be very simply and plainly worded, for the general public, especially stock owners. It is to embody a full statement of available information on the subject, so far as it concerns the stock owner in a practical way, and so far as such information is accepted by the Commission.

This primer will probably be published in very large editions in the United States and Canada and be given very wide distribution by the Canadian and United States Governments and by the several states.

The Committee entrusted with the responsibility of preparing this pamphlet is Dr. V. A. Moore, Cornell University; Dr. J. R. Mohler, Federal Bureau of Animal Industry; Mr. J. J. Ferguson, representing American packers; Dr. Reynolds, Minnesota, and Dr. F. Torrance, Manitoba, representing American and Canadian veterinarians in state work.

The next meeting of this Commission will be held at Toronto in August.

**Rabies.** Bulletin 162. The Colorado Agricultural Experiment Station, Ft. Collins, Colo. This bulletin is by Dr. Geo. H. Glover, head of the Veterinary Department and Dr. B. F. Kaupp, Pathologist, Veterinary Department of the Colorado Agricultural College. The publication deals with the history of rabies in this and other countries, with the symptoms of the disease, the findings on microscopic examination, the method of making animal experiments and means for the control and eradication of the disease.

A short description of the Pasteur treatment is given and the danger from meat and milk of rabid animals is noted. It is an interesting publication of the popular sort and one that veterinarians should have.

**The Colorado Horse Breeding Station.** Bulletin 166. Colorado Agricultural Experiment Station, Ft. Collins, Colo. All of our readers know, at least they have been frequently reminded that the United States government and the Colorado Experiment Station are carrying on a cooperative horse breeding experiment in the endeavor to breed a type of American carriage horses. This experiment has been in progress since 1904. This bulletin which is essentially one of information, gives some history of the experiments to date and numerous illustrations of types of horses that have been selected to found the American Carriage Horse. It is a subject of great importance to the horse industry of this country and one in which all veterinarians should be interested.

Other publications important to veterinarians but which for lack of space we cannot in this issue more than mention by title, are:

**Breeding Horses for the United States Army.** Bureau of Animal Industry, Circular 178.

**Hog Houses.** U. S. Department of Agriculture (Farmers) Bulletin 438.

**Special Bulletin.** Food Department No. 27 (Food Adulterations). Agricultural Experiment Station, Fargo, N. D.

**Methods of Examining Feces for Evidences of Parasitism.** Bureau of Animal Industry Bulletin 135.

**Diagnosis of Glanders by the Complement Fixation.** Bureau of Animal Industry, Bulletin 136.

The last two named are indispensable to laboratory workers.

---

## Talks on Snake Culture

The fellow who wants to saw some wood in this world should do a certain amount of reading—the more of it the better—and his private library should not be composed entirely of detective stories. The man who looks forward to an evening with his books is more to be envied than the one who looks forward to an evening with his beer. When a man coaxes along his thirst until he has to spend all his spare time lead-

ing it around, like a tame bear, from one grog parlor to another, he has no time or inclination for books. The appetite for highballs is fatal to the appetite for knowledge. Statistics show that it is fatal to everything worth while. A healthy highball appetite demands all a man's time and attention, and resents it bitterly if he tries to think of anything else, and that is why he seldom reads anything, unless it is printed on pink paper. To build up such an appetite takes a lot of time and money and means the sacrifice of all wholesome and profitable pleasures, and all that a man gets out of it is a three-cornered headache and a taste in the mouth that would break a street sweeper. Is it worth while?—*National Daily.*

# Pointed Opinions on Live Topics

BY READERS OF

Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

### An Unnamed Disease

Dr. F. E. Bowe of Hereford, Texas, writes that he would like to see further discussion on that peculiar disease affecting horses on the plains of Texas, described by Dr. Hugh Maxwell in the November, 1909, journal. He says the symptoms of the animals affected by this disease are: Temperature 101 to 107° F., pulse 60 to 90 per minute, respiration 25 to 35. There is an ophthalmitis present and an excessive lacrymation. The eyelids swell and abscesses form around the eyes, on the throat, on the breast and in the flanks.

A few cases are affected as with bastard strangles, in all parts, though most of them have only one part affected. Some few have internal abscesses. Frequently the abscess forms in the intermaxillary space and there is a slight formation as in influenza. Often there is weak heart action and in some cases a fatal collapse from this cause within a few hours of the appearance of the first symptoms. The altitude at Hereford is 3,600 feet. The symptoms are much like complications often following strangles. The disease seems to be increasing in prevalence. In the Doctor's locality last year there was more than one thousand cases with very few fatalities, the greatest loss was from abortion and failure to breed for about six months. The loss of time from farm work is usually from ten days to three weeks. There were no mules attacked though they were equally exposed. In some cases mule colts suckled mares with the worst form of the disease without showing any symptoms of infection.

As is the case in influenza all organs are liable to abscess formation from this trouble, and all animals are more or less debilitated, by an attack.

Is this a local disease known only on the plains of the Panhandle portion of Texas?

### Anent Adrenalin in Azoturia

Referring to the reply of Dr. Smead to my article on the treatment of azoturia, I will say, I use the same treatment as he does, but without the adrenalin, and I have as good success as he does. I give a dose of arecoline which relieves

the bowels of gas and feces in a very short time and quicker than waiting for aloes. Does he give the adrenalin for its stimulating effect? You do not need this effect in the first stages. He says it raises blood pressure. I believe we have too large a raise in blood pressure in these cases; the arteries show it. Now, if he will prove to us his favorable results from the adrenalin, let the doctor stop all other treatment and see what his results will be. Any veterinarian, after looking over his other treatment, can easily decide where the credit is due. As to his remarks about my use of it in hemorrhage. Adrenalin is a stimulant and hemostatic; it contracts the capillaries and arterioles, as I understand it, and that is what I used it for. It makes no difference whether I drop it on the tongue, Schneiderian membrane or inject it hypodermically, it produces the same effects. If the doctor wants to he can decide it very quickly by dropping a little spirits of glonoin into his nostril. Shortly his head will begin to ache; his face will flush and his heart will begin to beat faster. Afterwards drop some on the tongue and see if there is any difference in the effect. Give your other treatment credit for your cures; they deserve it.

I will relate a case I attended February 25th. This was a mare twelve years old, weighing about 1,400 pounds, who started to sweat profusely two miles from home and began to get stiffer all the time. She was unhitched and walked about one-fourth mile to a neighbor's where she went down once. She got up and went down the second time just inside of the barn door.

I was called, but I couldn't get her up, so I gave arecoline hydrobromide one-half grain, strychnine sulphate one-half grain, hypodermically, and left fluid extract of cannabis indica, one ounce, fluid extract of belladonna, two drams, one half to be given in one hour and repeated in one-half hour. This was all that I did. I did not draw the urine or touch her in any way, but she got up after five hours and has been up ever since. She got the proper eliminative treatment with some results.

I want to ask Dr. Smead to explain to me why the medical profession give atropine sulphate, and the magnificent results they receive in hemorrhage of the uterus in child-birth and after; also in hemorrhage of the lungs, etc. Do they give it for its stimulating effects? That's what they get. It does the work, or else the results I have been reading in *Clinical Medicine*, a medical journal of Chicago, and other journals, are false. Don't you think, after looking the question over a little further and reading this, I should have gotten results in my mild case of azoturia and also in the other? I would like to see some of these results. I cannot get them. I use the same grade of adrenalin, but unless I follow with other remedies I fail.

DR. H. THOMSON.

Newman Grove, Neb.

—

[If you will reread Dr. Smead's article you will note he does not

advise adrenalin alone in the treatment of azoturia but only to meet one of the many conditions present in this little understood disease.—ED.]

### Notes on Bacterin Therapy

In every case in the treatment of fistula and poll evil with bacterins, where I have cut well and deep at the beginning and established good drainage, I have had the very finest of results, quicker recoveries than I could have expected had the bacterins not been used. The same applies to my experience in the treatment of septic arthritis.—DR. HARRY MCCARTNEY, Alba, Mo.

Before I began using bacterins in the treatment of jack-sores I had never cured a single case. Since then I have cured many with autogenous bacterins in a month's time. I have found the bacillus necrophorus present in most of these cases—DR. H. JENSEN, Kansas City, Mo.

In the treatment of strangles in horses, I have used half strepto and half polyvalent bacterins with the best of results. In more than twenty cases, treated recently, the animals required no other treatment whatsoever and made a rapid recovery, the cases did not last more than three to ten days. I have conferred immunity to strangles by a single injection of this mixture of bacterins and it has remained permanent now during a period of several weeks. I lost a colt from pyemic arthritis that was treated with bacterins. I have had fair success with this treatment in the cases of fistula and poll-evil. I believe much, however, depends on the thoroughness of the initial operation.—DR. W. A. PECK, Independence, Mo.

The usefulness of bacterins in the treatment of animals has been overadvertised. This product has only one use—to increase the animal's resistance to suppurating organisms. All necrotic tissue must be removed surgically. The operative wound will heal in two-thirds of the time or less under bacterin treatment than it will under any other treatment. There is no doubt about this; it has been proven beyond any question. In the strepto-diseases more good will result from the strepto-bacterin than may be secured from the use of polyvalent bacterins. This is also true in cases of navel infection. Sometimes coli-bacterins are necessary, but occasionally failure results where all indicated bacterins have been used. Some animals fail to respond to bacterins. I have given as many as five hundred millions to a single animal without any appreciable effect.

Antiseptic washing and other meddling do harm. It is best to leave wounds alone when giving bacterin treatment. Do not irrigate, in fact, do nothing but give the bacterins. Make the operation at the beginning of the treatment thorough and then administer the bacterins and do nothing else.—DR. A. T. KINSLEY, Kansas City, Mo.

Some of my experiences with bacterins have been fortunate and some

have been unfortunate. I have had good results from the use of bacterins in strangles and no effect from the use of bacterins in summer sores. My success with bacterin therapy in the treatment of a limited number of cases of navel infection in colts has been wonderful.—Dr. W. B. Welch, Marshall, Mo.

## Some Obstetric Notes

Dr. D. O. Knisely was once called upon to and after much difficulty effected the delivery of a calf, every joint of which was solidly ossified. In another case in a small jersey cow he was called after forty-eight hours' work by the owner and found a very heavy membrane, which it was necessary to cut, it could not be ruptured with the fingers. Upon delivery he found the heart, the intestines, the lungs and other visceral organs on the outside of the calf. He cut through the skin and found the hair and legs on the inside.

In another case the vertebræ were solidly ossified and it was necessary to break the vertebral column in three places to deliver the fetus. This required six hours. The cows in all of these cases recovered.

Dr. Warren of Sedalia, Mo., has treated two obstetric cases where all vertebral articulations of the fetus were solidly ossified. In one case there was a ruptured uterus, in the other case the cow recovered.

It is reported that Dr. W. A. Heck of West Liberty, Iowa, has in several cases effected delivery both in mares and cows where there was torsion of the uterus by cutting through the flank and righting the uterus by manipulation.

Dr. Parslow of Shenandoah, Ia., has treated a number of cases in which there was torsion of the uterus in mares and in only one case has he been able to effect a delivery and that was only a partial rotation. He has delivered calves under these circumstances by the cesarean operation with recovery of the cow.

Dr. C. J. Sihler, Kansas City, Kan., has delivered calves through the side in case of torsion of the uterus, the cows usually die under these circumstances. He does not recommend it, since the cows may recover if left alone. On the killing beds in the packing houses, animals with mummified fetuses are frequently seen. In ewes and sows a total decomposition and discharge of the soft parts of the fetus may occur and only the skeleton may be found in the uterus of healthy animals on slaughter.

## Peculiarities of Azoturia

When atrophy of the muscles follows an attack of azoturia, it is of very uncertain duration. Forced exercise just as soon as the animal is able to walk will often prevent it. I believe the atrophy to be due to nerve trunk paralysis, recovery is rapid when it begins. I believe recovery will take place in every case. I have not seen it occur earlier than three months, nor later than eighteen months.—Dr. L. A. Merillat, Chicago, Ill.

In a practice of more than thirty years I have seen only one case of

azoturia in a pregnant mare.—Dr. J. W. Martin, Kankakee, Ill.

---

In more than twenty years' practice I have seen only one case of azoturia in a pregnant mare.—G. W. Walrod, Storm Lake, Iowa.

---

I have known only one pregnant mare to have azoturia, but she had it three times when well along in different pregnancies.—Dr. S. A. Deming, Ida Grove, Iowa.

---

In more than thirty years' practice, much of it in breeding districts, I have never seen a case of azoturia in a pregnant mare nor in a breeding stallion.—Dr. W. L. Williams, Ithaca, N. Y.

---

I have seen no loss from azoturia in Canada where the animals were fed oats. In Iowa where most horses are fed highly on corn, the loss from azoturia is very great.—Dr. J. W. Griffith, Cedar Rapids, Iowa.

---

My azoturia cases occurring in the city show a very high percentage of mortality but my cases occurring in the lumber camps up in the mountains nearly all recover, even without treatment. I believe that quiet at the beginning of the attack is a very essential factor in the recovery of the animal. The worst possible conditions under which azoturia can be treated are those to be found on the street where a crowd of curious people are gathered and from where the animal must later be conveyed to a hospital in an ambulance. Such a beginning in an attack of azoturia, very much predisposes to a fatal ending.—Dr. W. G. Hollingsworth, Utica, N. Y.

---

Azoturia has often appeared to me as a sort of enzootic disease. I have known of certain localities in which azoturia would exist for months, cases occurring frequently and perhaps in another part of the same county not a single case would occur during the entire time. In fact this peculiar distribution of azoturia seems to nearly always obtain in my section of the country.—Dr. Hal. C. Simpson, Denison, Ia.

---

I have seen only one case of azoturia in a breeding stallion. I believe it to be rare in these animals.—Dr. W. M. Fulton, Moorehead, Minn.

---

I believe that every case of azoturia will spontaneously recover if the animal is stopped when the first symptoms of the disease appear. I believe that thousands of animals are driven to the point of succumbing to azoturia, but because the exercise is stopped they recover without showing serious symptoms of the disease. I once drove an animal for a long time that was very susceptible to attacks of azoturia. In starting out for a drive I always watched this animal very closely and if the gluteal muscles did not properly relax I concluded that an attack of azoturia was coming on. My experience had shown this to be true. By stopping the animal and resting for a short time, sometimes only ten or fifteen minutes, this condition would pass off and she would later

be driven without danger.—Dr. I. E. Gibson, Des Moines, Iowa.

---

During a long practice in Canada I never saw any loss from azoturia. The cases always recovered, but there horses were fed only oats. Since coming to Iowa I have had great losses from azoturia. These animals were fed on corn. I have seen azoturia effect various parts of the body, commonest of course in the posterior limbs, but I have frequently seen it in the shoulders and even on the ribs.—Dr. Wm. Drinkwater, Monticello, Iowa.

---

I treat azoturia by the application of dry heat, preferably salt as hot as it can be borne, to the affected muscles. I have a large percentage of recoveries.—Dr. J. Vincent, Shenandoah, Iowa.

---

I have never seen a case of azoturia in a horse that had been in continuous idleness for more than ten days, nor in horses spasmodically exercised as fire-horses and army horses. I believe there is something about a long period of idleness that confers immunity to attacks of azoturia.—Dr. W. L. Williams, Ithaca, N. Y.

---

I have seen one typical case of azoturia in a mare that foaled three months later. Another case in a stallion that was kept in a box stall thirty feet square and taken from the stall only for service, and another case in an animal that had been in my hospital sixty days and had absolutely no exercise whatever, but went down on leaving with a typical case of azoturia one mile from the hospital.—Dr. Kingery, Creston, Iowa.

---

I believe attacks of azoturia occurring in animals after a long period of idleness are rare. I have seen only one such case and that occurred in an animal that had been in the sling for forty-two days. She was being driven home from my hospital when she came down with an attack of azoturia and died. —Dr. L. Van Es, Fargo, N. D.

---

### Fatal Runaway Accident

We learn from the Saginaw *Courier-Herald* that Dr. Donald C. Sutherland has died as a result of injuries received in a runaway recently. Dr. Sutherland was one of the first graduates of the Ontario Veterinary College and has been practising in Saginaw for more than forty years. He was a highly respected and public-spirited citizen. His death is a loss to the veterinary profession of Saginaw and of Michigan.

---

### U. of P. Notes

The 1913 Freshman Class of the Veterinary Department of University of Pennsylvania held their first banquet April 4th at the Continental Hotel. This was the first banquet of their course and was a grand success. The class numbers about fifty-nine members; there was a full representation.

The guests present were: Dr. Louis A. Kline, Dr. V. C. Moyer, Dr. C. J. Marshall, Dr. John W. Harshberger, Dr. Carl W. Gay, Dr. W. J. Lentz, Dr. Karl F.

Meyers, Dr. E. T. Booth, and Dr. Henry A. Neubold. All responded to toasts during the evening.

Dr. John W. Adams of the University of Pennsylvania started for Europe March 31st. He will spend the summer visiting a number of veterinary schools. His family accompanied him.

The Pennsylvania Veterinary Medical Society held their meeting in Philadelphia, March 7 and 8. The meeting was one that will never be forgotten by those present. Dr. John A. Adams arranged for the clinic, which was one of the finest, many interesting operations being presented.

The meeting was very well attended and there were a number of very interesting papers read. Forty new members joined the society at this meeting.

The Pennsylvania and Keystone Veterinary Societies gave a dinner Tuesday evening, April 4th, in Leonard Pearson Hall, U. of P., in honor of Dr. C. J. Marshall, who has been appointed state veterinarian. There were just 250 present, 100 of whom were ladies. Dr. Hoskins was the toastmaster and the following were the speakers: Dr. John W. Adams, Address of Welcome; University of Pennsylvania, Provost Edgar F. Smith; Medical Education, Dr. Allen J. Smith; Our Canadian Colleges, Dr. E. A. A. Grange; The Field of Comparative Medicine, Dr. John Marshall; Veterinary Education, Dr. Louis A. Kline; Our Association, Dr. Jacob Helmer; A City Milk-Supply, Dr. Samuel McHamill; Veterinary Journalism, Prof. Robert W. Ellis; Practical Dairying, E. T. Gill; Animal Husbandry, Dr. Carl W. Gay; The Ladies, Dr. H. B. Gill; and finally our guest, Dr. C. J. Marshall. The banquet was a very enjoyable one and every one present was beaming with good fellowship.—E. T. B., Philadelphia, Pa.

## Michigan Educates College Men

Our state has made little progress in the stamping out of tuberculosis. We are trying out a plan of taking bright young men, who have completed their four-years' course, and instructing them in the work of tuberculin testing, as we have not near enough graduate veterinarians in the state for the work. We give them course of lectures and demonstrations and use these men for field work under our direction. We have about fifty young men on this work now, and they are much more careful in the work than the regular veterinarians.—*C. E. Marshall, Veterinarian, Michigan Experiment Station at U. S. Live Stock Sanitary Association.*

[In every other State where tuberculin testing has been turned over to the laity, disappointment and worse than failure has resulted and we believe the Michigan authorities are doomed to disappointment in their experiments with this method. Nearly all of the objections to the tuberculin testing, in fact all objections to it that are worth considering come from those who know or have heard of fraudulent or otherwise unreliable testing having been done. It goes without saying that 99 percent of this unreliable testing has been done by

other than veterinarians. The hinderance that the eradication of tuberculosis among cattle has received from the use of tuberculin by the laity is beyond computation.

A single unreliable test, tuberculin test, more than overbalances a hundred accurate tests in the eyes of the general public. It is very unfortunate indeed if Michigan veterinarians are so unreliable that young men without any veterinary training can do much better work of a strictly professional type than they. We can not believe this of the profession in Michigan and think Dr. Marshall must have been unfortunate in the acquaintances he has made among the veterinarians of his own state. The statement that these men are used for field work under competent veterinary direction does not mean anything unless the veterinarian doing the directing is actually on the ground when the test is made. All that one not present when the test is made can judge by, is the temperature record and any intelligent young man can do this as well with a little instruction, but this does not constitute tuberculin testing and supervision by veterinarian miles away from the test amounts to nothing.—ED.]

---

### Abdominal Ascites in the Dog

---

DEFINITION: A collection of serous fluid in the abdominal cavity that originates without inflammatory symptoms.

This fluid, which, correctly speaking, is a transudate, is usually of a straw-color and sticky to the touch. Its specific gravity is about the same as blood serum, and upon exposure to the air readily clots into a firm jelly-like mass.

ETIOLOGY: Abdominal ascites cannot be considered as a disease per se, but only as a symptom of some other pathological condition such as cardiac disease or insufficiency, renal disease, obstruction of the portal circulation either by neoplasms of the liver, or cirrhosis of that organ, obstruction of the peritoneal veins by tumors, abscesses, tubercular deposits or chronic peritonitis. This non-inflammatory transudate must be differential from the inflammatory exudate of peritonitis.

SYMPTOMS: The abdomen gradually enlarges and becomes pendulous and pear-shaped, the flanks show a characteristic tucked-up appearance. Upon palpation of the abdomen with the finger tip, the patient being in the standing position, fluctuation may be recognized. The extent of the collection may be determined by percussion, the sound being dull where there is fluid and tympanitic above where the collection of fluid is very great. The patient shows great dyspnea owing to the pressure on the diaphragm, and in some cases cyanosis of the mucous membranes. Owing, also to the pressure on the abdominal contents, digestive disturbances such as diarrhea or constipation with occasional attacks of vomiting usually occur. The urine is usually normal but reduced in quantity.

PROGNOSIS: Owing to the diverse etiological factors causing this condition, prognosis must be very guarded until the primary cause is

diagnosed and even then it is only too often unfavorable.

TREATMENT: May be either medicinal or surgical or both.

1. The medicinal treatment consists of purgatives where constipation is present.

2. Diuretics and alteratives.

3. Tonics and medicines indicated to correct the primary condition.

The surgical procedure is to draw off the fluid by trocar and canula. This, if done with proper aseptic methods, is quite harmless and may be constantly repeated for the relief of the dyspnea. The trocar and canula should be of small size so as to draw off the fluid slowly to avoid shock and the animal must be in the standing position.

The following is a report of a typical case:

Patient, black cocker spaniel, eighteen months old. He had just recovered from a mild attack of distemper, when he was noticed by his owner (a medical man) to be getting "pot-bellied". Dyspnea then appeared and when presented for treatment it was very severe.

SYMPTOMS: Extreme dyspnea with cyanotic mucous membranes. Abdomen enormously distended, unable to stand or walk. Owing to urgency of case the temperature and pulse rate were not ascertained.

TREATMENT: During the necessary delay for sterilizing the trocar, shaving site of puncture, etc., patient was stood up on his hind legs, to relieve the pressure on the diaphragm. This relieved the dyspnea considerably.

The site of the puncture in the linea alba just posterior to the umbilicus was shaved and painted with tincture of iodine, the trocar was inserted and about one gallon of fluid drawn off. A purgative was administered and the patient put on potassium iodide five grains three times a day.

In about two weeks the abdomen had again filled up considerably with fluid. This was drawn off and the potassium iodide continued until the appetite was affected, it was then discontinued and patient put on the triple arsenates with nuclein.

No recurrence of the ascites has taken place since. This case was presented for treatment over eighteen months ago and is of interest in that no organic disease of heart, kidney, liver or peritoneum could be discovered, the ascites, in my opinion, coming on as a sequel to the distemper.

C. G. SAUNDERS, V. S. B. V. Sc.
*Lecturer on Canine and Feline Disease, Ontario Veterinary College; Examiner Veterinary Science, Toronto University.*

---

## Pyemic Infection of the Joints of Colts and Calves

---

This trouble is of frequent occurrence throughout the country districts, and many letters of inquiry are received as to the cause and treatment. In most instances the writer describes having lost one or two colts in previous years. As only colts running from a week to six weeks old seem to be affected, the matter is usually forgotten until the next spring when losses again occur.

The cause does not seem to the owner to depend upon anything other than the failure of the umbilicus to close. The true cause of the trouble is, to employ a common term, due to blood poisoning, the infection gaining entrance through the navel within a short time after birth.

The entrance of germs into this region is comparatively easy when we recall the condition of the cord at birth and remember how it penetrates into the abdominal cavity. The cord being made up of one vein and two arteries by which the fetus is nourished. The vein, the principal vessel by which the germs gain entrance passes directly into the liver from which organ the blood is carried by other vessels directly into the posterior vena cava. So that when the parts become infected the germs enter the large vein, causing an inflammation which extends up the vein to the liver. This spreading infection causes abscesses to form on the liver; once having gained this foothold the blood becomes infected and in its circulation carries the germs to various parts of the body. In young colts the germs seem to find the joints a favorable resting place, where a purulent inflammation is set up. In calves the lungs seem to form the most favorable location, and numerous small abscesses of the lung tissue are found. Diarrhea is very profuse.

The severity of the arthrites in colts and the lung and bowel trouble in calves is in direct ratio to the infection. That is, the greater the infection the greater and more pronounced are the complications.

Treatment is primarily preventive. It is necessary where the disease has existed, that treatment be given the young animal immediately it is born. This is best done by applying dry dressings to the cord. For this purpose boracic acid is perhaps the best. The method to be adopted is as follows: The cord should be dusted liberally with the boracic acid and a piece of cotton batting about the size of one's hand immediately applied and held in place by a bandage. The dressing should be removed daily until the cord is dry and shriveled.

It should be borne in mind that the stall should be disinfected by saturating the floor with a six percent solution of carbolic acid. All bedding in any way soiled should be removed and clean dry bedding substituted.

The treatment of affected animals is very unsatisfactory, the mortality being very great. In advanced cases, where the colt shows enlargements of more than one joint or where the swelling disappears in a joint and reappears in another, treatment is usually hopeless. In the milder cases, treatment with the anti-streptoccic serum may be given, together with frequent disinfection of the cord. Antiseptics may be injected into the cord if the same is open.—S. H. WARD, State Veterinarian. *Report of Minnesota Live Stock Sanitary Board.*

---

### A Problem for Each Farmer

---

Ex-Governor Hoard's work of eradicating tuberculosis from his herd is an example of what every

farmer should do. People must not look for quick eradication. The work must have a stimulant. The big shows and fairs can do much along this line. Clean cattle and diseased should not receive the same price on the market. A healthy herd, under the present market system, must stand a percent of the loss from diseased stock that the packer figures on.—*A. D. Melvin, Chief of the Bureau of Animal Industry, at Live Stock Sanitary Association.*

### Bovine Tuberculosis a Danger to Man

No city health department can afford to slacken its fight on tuberculosis among live stock, as from two to three percent of the mortality from tuberculosis can be traced to this cause.

Tuberculosis among dairy cattle is largely responsible for the high price of milk, and among other live stock for the higher price of meat products. Hogs contract tuberculosis by following the cattle affected with tuberculosis in the fields.—*W. A. Evans, M. D., Health Commissioner, Chicago.*

### International Tuberculosis Congress

When the International Congress on Tuberculosis meets at Rome next September representatives of over thirty national and provincial associations organized to fight tuberculosis will be present. Among the associations which will be present are : The United States, Canada, Cuba, Trinidad, England, Wales, Ireland, Norway, Sweden, Denmark, Russia, Germany, Belgium, Holland, France, Switzerland, Portugal, Italy, Greece, Bulgaria, Hungary, Austria, New Zealand, Japan, Cape Colony, Argentina, Brazil, Chile, Newfoundland, Roumania, Uruguay and Venezuela.—*Chicago Health Bulletin.*

### Strongylosis*

In bronchial strongylosis the worms are found in the bronchial tubes where they are frequently coiled in small balls and cause bronchitis by their irritation of the mucous membrane; they may even occlude the bronchial tubes.

In pulmonary strongylosis the worms find their way to the air saccules and produce occlusion. Bronchial pneumonia frequently develops as a result of infestation of both bronchi and saccules. The bronchial type of the disease is usually found in young animals while the pulmonary form is generally found in older ones. All animals are infested by their respective species of the genus strongylus.

*Symptoms*: Coughing by paroxysms; more especially at night on damp days and immediately after a period of recumbency, as when rising at the manger, or when forced to run.

There is a discharge of thick mucus from the nostrils which is sometimes streaked with blood and frequently hangs in shreds. This mucus usually contains some of the worms.

*Read at the Montana Veterinary Medical Association Semi-annual Meeting, 9-10, 1911, at Bozeman, Montana.

In such animals as are declining under the influence of the worms, there is noticeable a general anemia, pale visible mucous membranes, dry, harsh skin, and dry, dull, staring hair or wool. There is an elevation of the temperature, listlessness and disinclination to follow the herd or flock.

Upon auscultation mucous rales can be plainly heard and dullness noted on percussion.

*Pathological symptoms*: The worms are found singly or coiled in bunches in the bronchi which are also filled with thick mucous and sometimes streaked with blood; in the pulmonary form of the disease the worms are found in the saccules of the lungs and also frequently in small abscesses in the parenchyma of the lungs. Hepatization of more or less extensive areas of the lung tissue is often present.

The advanced cases show: thin, pale blood which is slow to coagulate; the liver and spleen enlarged, the heart muscles and kidneys soft and flabby.

Verminous bronchitis in equines is caused by the strongylosis Arnfeldi: a white, thread-like worm, one to two and one-half inches long. The female is oviparous.

Two varieties of worms infest the lungs of cattle.

S. micrurus: a white thread-like worm one and one-half to three inches long; the female is oviparous, and the S. pulmonalis which is somewhat shorter or only about one-half the length of the preceding variety.

Sheep and goats are also infested by two varieties of lung worms, namely:

S. filaria: white and filiform, attenuated at both extremities, two to four inches long. The female oviparous.

S. rufescans; reddish brown and thread-like one to one and one-half inches long.

Swine are infested by only one known variety of lung parasites, the S. paradoxus. It is white or brownish white and thread-like; it is one to one and one-half inches long.

As far as I am informed by referring to several different authors, the life history of these various strongyli is practically the same and is important from a sanitary standpoint.

The ova or larvæ are expelled with the mucous directly by coughing or are swallowed and pass out with the feces. Moisture is necessary for the growth of the worm but if it falls in water contaminated with decomposing vegetation it is said to be unfavorable for its development. Moist earth is the most favorable for its growth.

One to two weeks' time must elapse after the larva or ovum is deposited in the soil before it moults but if it is again taken into the animal before that time it perishes.

If after the parasite has moulted it is then said to be prepared to withstand all kinds of vicissitudes and is ready to be taken into the animal's system by air, food or water and to develop and reproduce.

History: This disease was first discovered in France in 1768. It is now known in every civilized country and is very prevalent in the central and eastern part of the United States.

The long period required for the development of these parasites outside the animal body has been favorable to the live stock interests of Montana and especially to the interests of flock masters.

As the country settles up, however, and these flocks are kept more on the same pastures or watered longer at the same watering places the sheep and goat industries will suffer by the invasion among their flocks of these dangerous and destructive parasites.

I have never seen a case of verminous bronchitis in horses but a report of some cases in a bunch of young horses by Prof. F. F. Brown of Kansas City, will, I believe, be of interest.

The doctor was called in consultation to a place some distance from Kansas City in the eastern part of Kansas and found that several horses (colts) had died and a number were showing symptoms of anemia. Although autopsies had been held the cause was still undiscovered. Prof. Brown, upon autopsy, soon revealed the S. Arnfeldi and proceeded to treat the remainder of the herd by steam inhalations from oil of eucalyptus and hot water.

There were no further losses and all the animals so treated recovered.

In December, 1897, I saw a bunch of young cattle, about 200 head, on a farm near Appleton City, Missouri, where several had died during the preceding few weeks and probably fifty percent of the herd showed symptoms of verminous bronchitis. I killed and autopsied a two-year-old heifer, which was markedly anemic, and found the worms in the trachea, bronchi and lungs. These cattle were treated under my direction by drenches of turpentine emulsion and repeated in three days and again once a week for several weeks. I prepared the emulsion.

The cattle were moved from the infested corralls and sheds but were returned to them after about eight weeks. In the meantime they had been thoroughly disinfected.

I saw these cattle about the last of the following February when I was called to vaccinate them for the prevention of black-leg, but found in them none of the symptoms of strongylosis.

Those corralls were used by the same owners continually for cattle raising without further trouble from the parasites.

Subsequently I have treated a number of bunches of young cattle for verminous bronchitis with favorable results in every instance, but in each case the cattle were removed from the infested corralls.

About November, 1903, I saw a flock of registered angora goats (about 300 head) of which quite a number had died. Probably twenty percent of the flock showed symptoms of strongylosis. A postmortem examination revealed not only the pulmonary variety of strongyli but also the gastric variety or strongylus contortus.

The goats were treated by repeated drenches with turpentine emulsion but the owner protested against their removal from the sheds and corralls which were so well prepared to protect the animals from the vicissitudes of the weather. There was also a low land adjacent

which was covered with thick underbrush and through which ran a sluggish stream.

Attempts were made to disinfect the premises and after the drenches were discontinued tonics containing arsenic were given in the feed.

Six weeks after I saw the goats they were reported to have improved very much in condition and no more were dying but about a month thereafter they were again reported to be as bad as at first, the owner consented to having them removed and after three or four drenches of the turpentine emulsion they were removed to a farm about ten miles distant where they received no other treatment but where they continued to breed and thrive for some years without further trouble from the parasites.

In Missouri I treated several small flocks of sheep for verminous bronchitis depending entirely upon repeated drenchings of turpentine emulsion and in every instance where the sheep were moved to non-infected pasture they recovered and in some instances that I know the flock was kept and bred for several years after the treatment without further symptoms of the disease.

Three years ago I first saw a flock of sheep infested with strongyli in Montana and since that time I have treated twelve other flocks. In this state it is more difficult to treat sheep thoroughly for any disease and especially one so pernicious as strongylosis since the flocks contain such large numbers that it requires much time and expense to eradicate the disease.

A flock of 700 ewes for which I refused to issue a health certificate in the stockyards at Livingston a year ago last fall and in which I found the strongyli in the mucous hanging from the nose of several when placed under the microscope were given several drenches of turpentine emulsion and are still owned in Park County. They raised a good percentage of their lambs last season.

I have never met with a case of verminous bronchitis in swine.

The paroxysms of coughing are characteristic of verminous bronchitis, it being a deep bronchial cough.

Several flock masters have told me that they can differentiate between the cough of verminous bronchitis and the ordinary sheep coughs after they have had experience with infested sheep.

Finding the worms in the nasal discharges or in the bronchi in autopsies is the only positive diagnosis.

I believe every author I have read, except one, gives a doubtful or serious prognosis as to the ultimate recovery of a flock of sheep infested with lung worms.

The modes of administration of remedies are: inhalation of medicated steam or gases, intratracheal injections, medicine in the feed as by drench.

It is my opinion that to be successful in the treatment of this disease every animal must be treated individually and the treatment must be several times repeated. I prefer the medicated vapor inhalation where it can be used practically but where a large number of animals are to be treated at the same time it is impracticable to

carry out the steam inhalations, as for instance in a band of sheep.

The list of remedies which are recommended in the treatment of pulmonary strongylosis includes oil of tansy, tar, turpentine, eucalyptus, camphor; also carbolic acid, gasoline, chloroform, creosote and arsenic combined with the bitter tonics.

The treatment which I have used with, I believe, some degree of success on sheep and goats is a turpentine emulsion and is prepared in the following way:

Sodium chloride three pounds; potassium nitrate, one-half pound; aquæ fervensis, three gallons.

M. When the salts are dissolved a half pound of ginger is stirred into it and the mixture kept at about 165° F. for eight hours.

When the emulsion has cooled to about 100° F. twenty-four ounces of turpentine is added to the emulsion and the whole agitated vigorously.

The average dose of the emulsion for an adult sheep is four ounces and for a lamb about half of that quantity.

I recommend changing the feeding and watering places every two weeks until at least two changes are made and the drenching of the sheep twice a week for four to six weeks and in cases of extra well bred sheep to keep up the treatment by drenching once a week for several weeks or until no symptoms of the disease remains.

My advice has been, in common breeds of sheep, to give a few drenches and send the sheep to market for slaughter as soon as they can be prepared for it and in lambs to fatten them and sell for slaughter.

A. D. KNOWLES, D. V. S.

## Chicago a Veterinary Center

Chicago is doctoring a big portion of the animal kingdom.

This fact is evidenced from the great increase of veterinarians graduated in and distributed from this city within the last decade.

The statement recently was made by one of the doctors attached to a Chicago veterinary institution that where ten years ago one veterinarian had established a practice, one hundred are now making the practice a regular profession.

It still is the practice among a large number of farm people to write to their farm paper to ask an opinion and a prescription for an ailing animal. But in hundreds of instances the diagnosis is faulty, and before the real trouble is known and a prescription filled the beast has died.

The first big increase in the practice of veterinarians followed closely the installation of the telephone connecting town with farm. It was then possible to get help in a short time, and in so many instances has the new custom paid out handsomely that it has grown like a veritable green bay tree.

One of the most active movements is the propaganda urging the use of alkaloids in the treatment of the ailing brute tribe.—*Chicago Tribune.*

## Lesions of Pernicious Anemia

In the April JOURNAL, on page 544, question 1 reads: "Are there any microscopic symptoms that are diagnostic in pernicious anemia?"

Symptoms, as I understand the word, represent or stand for a sign which is usually a perverted function or a functional disturbance, and we are not in the habit ordinarily of using a microscope to find a symptom, so I presume that this question refers to the lesions or microscopic dimensions that might be used in the diagnosis of pernicious

anemia. If such is the case, the blood gives the most typical microscopic picture of pernicious anemia.

There is a marked diminution of the red blood cells in this disease. There is anisocytosis, poikilocytosis, and an occasional erythroblast is observed. There is a marked diminution in the hemoglobin content of the blood. Some men in the region in which this disease now abounds use hemoglobin scale tests as an auxiliary in the diagnosis and I must say it is quite a positive factor in the diagnosis of this disease. In addition, the muscular and glandular tissues are affected with parenchymatous degeneration. Pigmentation with hemoglobin and its derivatives is observed in the liver, spleen and kidneys. The central portion of the liver lobules is infiltrated with leucocytes. The splenic corpuscles are practically eliminated.

There are also other degenerative and necrotic changes.

A. T. KINSLEY.

Kansas City, Mo.

---

*The Chinosol Co.*

GENTLEMEN: Enclosed find money for which please send three boxes of Chinosol tablets. I find this product to be all that you say it is and if possible even more. In cases of cuts from barbed wire, it is most valuable. I am entirely out, so please send as early as possible, and oblige,

Yours truly,

G. W. LAFORGE, V. S.

Burnet, Texas,

March 31, 1911.

---

*Dr. G. W. LaForge, Burnet, Texas.*

DEAR DOCTOR: Your order is immediately attended to. Are we at liberty to quote your utterances to your colleagues? It is always interesting to them to know the actual clinical experiences of others.

Yours truly,

CHINOSOL CO.

Chas. Roome Parmele,

New York, *President.*

April 5, 1911.

---

*Chinosol Co.*

GENTLEMEN: You are at perfect liberty to quote my statement. I do not feel in any way ashamed to recommend Chinosol, for it is the best antiseptic and deodorant that I have ever found. I would not be without it, even if it cost twice as much as you charge for it.

Yours truly,

G. W. LAFORGE, V. S.

April 11, 1911.

**EIMER & AMEND**

205-211 Third Ave., NEW YORK

Make a Specialty of all Drugs, Extracts, Tinctures, Chemicals, etc., etc., used in Veterinary Practice.

Sulfglycerole—for Skin Lesions.
Sulfglycerole Ointment—for Scratches.
Veterinary Glycerine Suppositories.
New York Agency for Bunton Drug Co.'s Hypodermic Veterinary Tablets.

We carry a very Comprehensive Stock of Laboratory Glassware and Apparatus, Chemically Pure Chemicals, and Bacteriological Apparatus.
Catalogue "V. M." gladly sent on request.

When writing Advertisers, please mention American Journal of Veterinary Medicine

**"When veterinarians learn the value of THIGENOL they will never be without a supply. It is nothing short of a specific for scratches, grease heel and eczema, in all stages."**

*That is what a celebrated veterinarian—an instructor in veterinary therapeutics—says.*

A fine thing, too, about THIGENOL is that **it makes the hair sprout** after the disease is cured.

*Send for a sample and try it yourself in*

**Scratches, Grease Heel,**
**Eczema, Pressure Wounds,**
**Mange, Barbed-wire Cuts,**
**Malanders, etc., etc., etc.,**

*and mark the quickness of results.*

**A number of veterinarians endorse its excellent qualities**

THE HOFFMANN-LA ROCHE CHEMICAL WORKS
65 Fulton Street, New York

DR. S. V. RAMSEY, President DR. C. I. FLEMING, Dean

# Terre Haute Veterinary College

SESSION 1911-1912

Thoroughly modern, perfectly equipped Laboratories, Operating Rooms, Clinical and Dissecting Laboratories. Perfect advantages for practical course in Medical and Operative Clinics. Hospital records show over 400 cases treated in hospital during the session of 1910-1911

TERMS TUITION { Matriculation . . $ 5.00
Session . . . . . 80.00

For Catalogue and Information Address Terre Haute Veterinary College
Third and Poplar Streets, TERRE HAUTE, IND.

The Chicago Veterinary Society

*Meets the Second Tuesday Evening in Every Month. Visitors always welcome.*

Out-of-town Veterinarians are urged to attend our meetings when in the city. Telephone the secretary for the place and hour of meeting.

J. M. PARKS, President
D. M. CAMPBELL, Secretary, Phone Edgewater 748

The Veterinary News, London England

*Edited by*
**Prof. WOODRUFF, M.R.C.V.S., B.Sc.**
*Professor at the Royal Veterinary College, London*

The most up to date and popular Weekly Veterinary Periodical in Great Britain. *All Veterinarians should read it regularly.*

**Price 4c weekly** **Annual Subscription $2.75**

Subscriptions from the United States should be sent through the
AMERICAN JOURNAL OF VETERINARY MEDICINE
1920 Wilson Avenue, Chicago

# Chicago Veterinary College

**2533-2535-2537-2539 State St., CHICAGO**

Organized and incorporated under the laws of the State of Illinois, 1883. For prospectus giving all information as to curriculum, fees, etc., address the president.

**JOSEPH HUGHES, M. R. C. V. S.**
**2533-2535-2537-2539 State St. CHICAGO, ILLINOIS**

**When writing Advertisers, please mention American Journal of Veterinary Medicine**

DR. M. P. RAVENEL, head of the department of bacteriology at the University of Wisconsin, has just been appointed a member of the new national commission of experts to consider and fix a standard for milk.

**Notice.**—The mid-summer meeting of the ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION will be held at Peoria, July 5, 1911.

L. A. MERILLAT,
1857 Wabash Ave., Secretary.
Chicago, Ill.


. . . CAPSULES OF QUALITY . . .

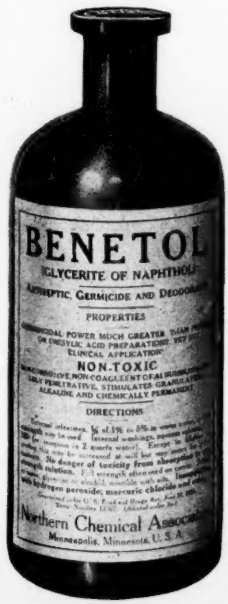
PLANTEN'S
ELASTIC-SOFT
CAPSULES

CAPSULATING PRIVATE FORMULAS A SPECIALTY

LET US SEND YOU SAMPLES.

H. PLANTEN & SON, (Established 1836) 93 HENRY STREET, BROOKLYN, N. Y.

"The Pioneer American Capsule House."




Will You Pay Transportation

charges for enough of the most effective preparation known to Veterinary Medicine, to give it a thorough trial? SEE OUR SPECIAL OFFER BELOW, GOOD ONLY UNTIL JULY 1st, 1911.

**Benetol is a powerful non-toxic, non-irritating germicide—effective in the treatment of Bursattee, Fistula, Quittor, Eczema, Dermatitis, Vaginitis and infected wounds of every description. It allays pruritis and promotes healing.**

**Descriptive pamphlet containing clinical directions and endorsements of prominent Veterinarians sent upon request.**

One of the many letters constantly coming in from veterinarians all over the country reads as follows:

"Another life-long friend added to the many possessed by Benetol. Safely stored in my wire case I keep at all times two bottles of Benetol; one to use myself and one to leave my client. I find it superior to anything I have ever used in promoting granulation and to allay itching. I have also used Benetol during and subsequent to castration of ridglings. In all, I find it of great value as a surgical adjunct.

From a Western Friend,
(Signed) DR. RALPH ELLIS, Odessa, Wash.

Dr. L. N. Peterson, of Cullom, Ill., writes that he considers the odorless feature of the Benetol alone a distinct advantage over all the coal-tar preparations and gives it as one of the many reasons why Benetol is so superior to the rest.

SPECIAL OFFER:

**We will send FREE a one-pound bottle of VETERINARY BENETOL (retail price $1.00) to each Veterinary Practitioner answering this ad who will send us a report of the results observed from its use in his work. We furnish the BENETOL, pack and ship it, all FREE. Your end is simply to pay transportation charges and write us the results of your trial.**

**This is the last month of our free offer. Charge will be made for all trial packages of BENETOL hereafter. Watch for next month's announcement.**

NORTHERN CHEMICAL ASSOCIATION
MINNEAPOLIS, MINNESOTA, U. S. A.

# Poly-Bacterins

(ABBOTT)

## Six Doses for $1.50

## A Hypodermic Treatment for Fistula, Poll Evil and Other Suppurating Conditions.

**Poly-Bacterins**
(Abbott)

A Polyvalent vaccine containing the dead bodies and liberated endotoxins of the staphylococcus and streptococcus organisms.

## A CURATIVE TREATMENT FOR

**Fistulous Withers**
**Poll Evil**
**Quittor**
**Open Joint**
**Strangles**
**Nail Punctures**
**Calk Wounds**
**Wire Cuts**
**Abscesses**
**Lymphangitis**
**Cellulitis**
**Septic Arthritis**

**And Suppurative Conditions Generally**

**A Preventive Treatment for** Strangles or Colt Distemper and Suppuration following Surgical Operations.

**Poly-Bacterins (Abbott) have been thoroughly tried and found efficient**

Read reports concerning the use of Bacterins in Missouri Valley Veterinary Bulletin Sept. and Nov., 1909 and Feb. and March 1910. American Veterinary Review Feb., 1909 and March, 1910.

Supplied only in boxes of 6 ampules, each of which contains an average dose for a horse. Ready for use; will keep many months.

Complete active-principle price list to Veterinarians on request. If you have not a copy, write for one today. We do not serve the laity.

## The Abbott Alkaloidal Company

**Ravenswood Station, Chicago, Ill.**

**BRANCHES:—NEW YORK SAN FRANCISCO SEATTLE TORONTO LONDON**

**We have the confidence, therefore the preference, of the profession.**